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GRAPHICAL SYMBOLS USED IN ELECTROTECHNOLOGY

PART XIX ELECTRICAL EQUIPMENT USED IN MEDICAL PRACTICE

(Second Reprint APRIL 1995)

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GRAPHICAL SYMBOLS USED IN ELECTROTECHNOLOGY

PART XIX ELECTRICAL EQUIPMENT USED IN MEDICAL PRACTICE

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(*Continued on page* 2)

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(*Continued on page* 22)

Indian Standard

GRAPHICAL SYMBOLS USED IN ELECTROTECHNOLOGY

PART XIX ELECTRICAL EQUIPMENT USED IN MEDICAL PRACTICE

0. FOREWORD

0.1 This Indian Standard (Part XIX) was adopted by the Indian Standards Institution on 25 April 1977, after the draft finalized by the Electrotechnical Standards Sectional Committee in consultation with the Electromedical Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 It is common in electrical and electronic engineering practice to employ graphical symbols to denote the various means and devices used when making diagrams of connections. The connecting devices and the points where they make contact with the apparatus may be indicated in the diagram. With the object of standardizing the symbols to meet the various needs of the electrical and electronic industry, as far as possible, based on symbols internationally agreed, a series of standards is being formulated.

0.3 In selecting and devising these symbols the object has been to ensure, as far as possible, that they are self-explanatory, easy to draw and in general use. It may be necessary in detailed diagrams to indicate the physical structure of the apparatus, the actual position of the terminals and so forth, but, where possible, the principle of the standard symbols should be followed.

0.4 It may be possible that for the items specified in this standard other symbols are used in this country. However, in the interest of the unification in the use of these symbols, only one symbol based on the internationally agreed symbols for each item has been specified.

0.5 While preparing this standard considerable assistance has been derived from IEC Doc: 62A (Secretariat) 12 'Draft symbols for electrical equipment used in medical practice' issued by International Electrotechnical Commission.

0.6 This standard is one of a series of Indian Standards on graphical symbols used in electrotechnology.

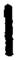
1. SCOPE

1.1 This standard (Part XIX) covers graphical symbols for electrical equipment used in medical practice.

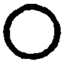
2. SYMBOLS

2.1 General Symbols

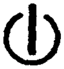
2.1.1 *On* (*Mains, Power*)



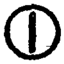
2.1.2 *Off* (*Mains, Power*)



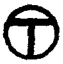
2.1.3 *Stand-by* (*Mains*)



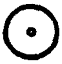
2.1.4 *On/Off* (*Mains, Push-Push*



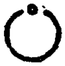
2.1.5 *On/Off* (*Push Button*)



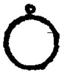
2.1.6 *On* (*Internal*)



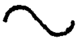
2.1.7 *Stand-by* (*Internal*)



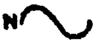
2.1.8 *Off* (*Internal*)

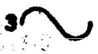
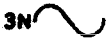
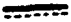
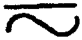
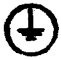
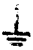
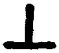
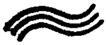
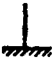
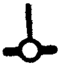
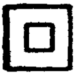


2.1.9 *Alternating Current*

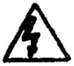


2.1.10 *Alternating Current with Neutral Conductor*

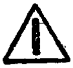


2.1.11 *Three-Phase Alternating Current*	
2.1.12 *Three-Phase Alternating Current with Neutral Conductor*	
2.1.13 *Direct Current*	
2.1.14 *Both Direct and Alternating Current*	
2.1.15 *Protective Earth Terminal*	
2.1.16 *Functional Earth Terminal*	
2.1.17 *Functional Earth Terminal (Alternative for* **2.1.16**)	
2.1.18 *High Frequency*	
2.1.19 *Frame or Chassis*	
2.1.20 *Potential Equalization Terminal*	
2.1.21 *Class II Protection*	
2.1.22 *Protection Against Drops of Liquid*	IP 22
2.1.23 *Protection Against Rain*	IP 23
2.1.24 *Protection Against Splashing*	IP 25
2.1.25 *Connection Point for Neutral Conductor*	N

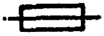
2.1.26 *High Potential Hazard*



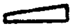
2.1.27 *Attention, Consult Accompanying Documents*



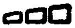
2.1.28 *Fuse*



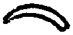
2.1.29 *Increasing or Decreasing of a Quantity*



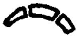
2.1.30 *As in* **2.1.29** *with Number of Positions*



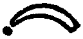
2.1.31 *As in* **2.1.29** *for Rotating Controls*



2.1.32 *As in* **2.1.31** *with Number of Positions*

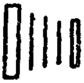


2.1.33 *As in* **2.1.29** *with Off-Position*

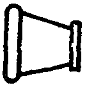


2.2 Symbols for the Control of Functions

2.2.1 *Radiography* (*Exposure General*)

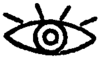


2.2.2 *Indirect Radiography*

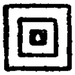


NOTE — The format size may be indicated.

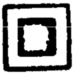
2.2.3 *Flouroscopy*



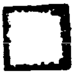
2.2.4 *Ultra-Fine Focal Spot* (*Below* 0·3)



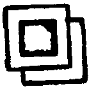
2.2.5 *Small Focal Spot*



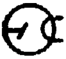
2.2.6 *Large Focal Spot*



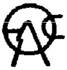
2.2.7 *Stereo Focal Spots*



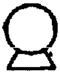
2.2.8 *X-Ray Tube*



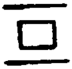
2.2.9 *X-Ray Tube Emitting*



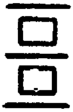
2.2.10 *X-Ray Tube Assembly*



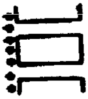
2.2.11 *Single Exposure*



2.2.12 *Serial Exposure*



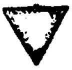
2.2.13 *Cine Exposure*



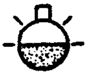
2.2.14 *Plus Positive Polarity (Addition)* +

2.2.15 *Minus Negative Polarity (Subtraction)* —

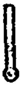
2.2.16 *Reference Point or Calibration*



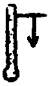
2.2.17 *Indirect Lighting (For Control Panels, etc)*



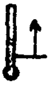
2.2.18 *Temperature*



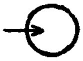
2.2.19 *To Reduce Temperature (Temperature Falling)*



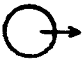
2.2.20 *To Raise Temperature (Temperature Rising)*



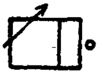
2.2.21 *Input*



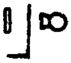
2.2.22 *Output*



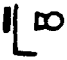
2.2.23 *Remote Control*



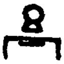
2.2.24 *Vertical Fluoroscopic Stand*



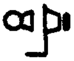
2.2.25 *Vertical Radiographic Stand*



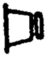
2.2.26 *Horizontal Bucky Table*



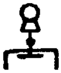
2.2.27 *Photo-Fluorographic Stand*



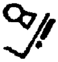
2.2.28 *Photo-Fluorographic Camera*



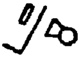
2.2.29 *Horizontal Tomograph (General)*



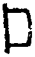
2.2.30 *Tilting Table With Over Table Tube*



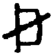
2.2.31 *Tilting Table With Under Table Tube*



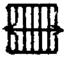
2.2.32 *Compression Device (in Position for Use)*



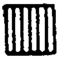
2.2.33 *Compression Device (Parked)*



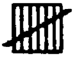
2.2.34 *Moving Grid*



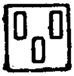
2.2.35 *Fixed Grid*



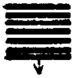
2.2.36 *Without Grid*



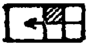
2.2.37 *Termination of Exposure by Radiation Measurement*



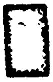
2.2.38 *Kymograph*



2.2.39 *Serial Changer (Spot Film Device)*

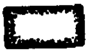


2.2.40 *Film Format and Orientation Selection, Single Exposure*

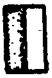


Note — Nominal film size may be indicated.

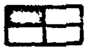
2.2.41 *As* **2.2.40** (*Alternative Symbol*)



2.2.42 *As* **2.2.40**, *Sub-Division as Indicated*

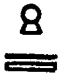


2.2.43 *As* **2.2.40**, *Sub-Division as Indicated*

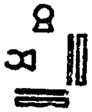


Note — Nominal film size may be indicated.

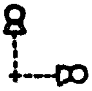
2.2.44 *Film or Cassette Changer* (*Single Plane*)



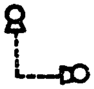
2.2.45 *As* **2.2.44** (*Bi-plane*)



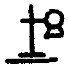
2.2.46 *Simultaneous Bi-plane Operation*



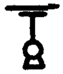
2.2.47 *Alternating Bi-plane Operation*



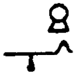
2.2.48 *Floor Tube Stand*



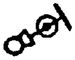
2.2.49 *Ceiling Tube Stand*



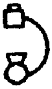
2.2.50 *Urological Table*



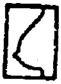
2.2.51 *Skull Unit*



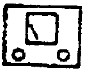
2.2.52 *C-Arm*



2.2.53 *Mammography*

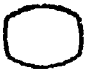


2.2.54 *Control Panel (Switching From Control Panel)*

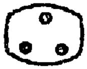


2.3 Symbols for Devices

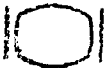
2.3.1 *Television (General)*



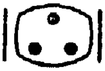
2.3.2 *Colour Television*



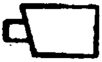
2.3.3 *Television Monitor*



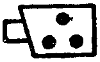
2.3.4 *Colour Television Monitor*



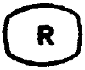
2.3.5 *Television Camera*



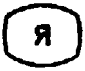
2.3.6 *Colour Television Camera*



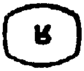
2.3.7 *Television Image, Aspect Normal*



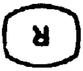
2.3.8 *Television Image, Aspect Reversed Laterally*



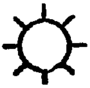
2.3.9 *Television Image, Aspect Inverted*



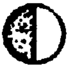
2.3.10 *Television Image Aspect Inverted and Reversed*



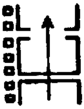
2.3.11 *Brightness*



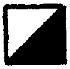
2.3.12 *Contrast*



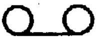
2.3.13 *Film Movement in Direction of Arrow*



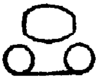
2.3.14 *Film Blackening*



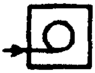
2.3.15 *Tape-Recorder*



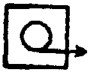
2.3.16 *Video Tape-Recorder*



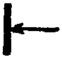
2.3.17 *Take-Up Magazine*



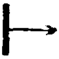
2.3.18 *Feed Magazine*



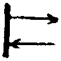
2.3.19 *Recording*



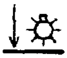
2.3.20 *Play-Back*



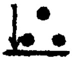
2.3.21 *Recording and Play-Back*



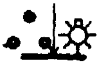
2.3.22 *Recording Information With Light*



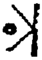
2.3.23 *Colour Recording*



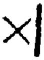
2.3.24 *Colour Recording With Light*



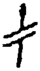
2.3.25 *Marking an Information Carrier*



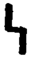
2.3.26 *Erase*



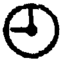
2.3.27 *Cutting*



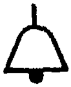
2.3.28 *Fault Condition*



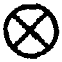
2.3.29 *Timer*



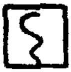
2.3.30 *Acoustic Signal*



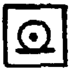
2.3.31 *Optical Signal*



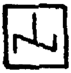
2.3.32 *Writing Device*



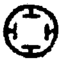
2.3.33 *Printer*



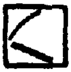
2.3.34 *Stirrer*



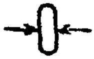
2.3.35 *Oscilloscope*



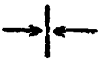
2.3.36 *Measuring Instrument (Analogue)*



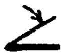
2.3.37 *Zero Setting on Instruments and Display Units*



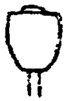
2.3.38 *Setting to Central Position*



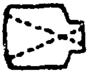
2.3.39 *Foot-Switch*



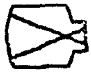
2.3.40 *Hand-Switch*



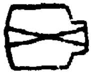
2.3.41 *Image Intensifer (General)*



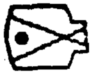
2.3.42 *Image Intensifer (Normal Size Image)*



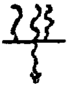
2.3.43 *Image Intensifer (Enlarged Image)*



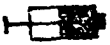
2.3.44 *Image Intensifer, Getter*



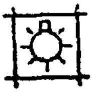
2.3.45 *Radiation Filter*



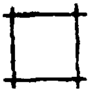
2.3.46 *Injection Syringe*



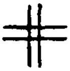
2.3.47 *Field Illumination (Light-Beam Diaphragm)*



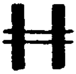
2.3.48 *Beam Limiting Device (Open)*



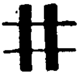
2.3.49 *Beam Limiting Device (Shut)*



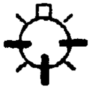
2.3.50 *To Open Sets of Shutters, as Indicated by Thick Lines, in Beam Limiting Device*



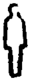
2.3.51 *To Close Sets of Shutters, as Indicated by Thick Lines, in Beam Limiting Device*



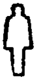
2.3.52 *Centering Device Using Light Beams*



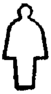
2.3.53 *Patient, Thin*



2.3.54 *Patient, Normal*

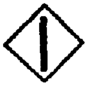


2.3.55 *Patient, Thick*

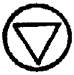


2.4 Symbols for the Movements of the Equipment

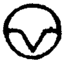
2.4.1 *Start, Initiation of a Movement or Process*



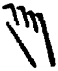
2.4.2 *Stop, Termination of a Movement or Process*



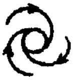
2.4.3 *Pause*



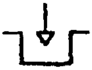
2.4.4 *Manual Operation*



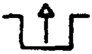
2.4.5 *Automatic*



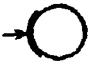
2.4.6 *To Lock (Locked)*



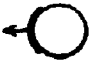
2.4.7 *To Unlock (Unlocked)*



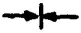
2.4.8 *To Brake (Brakes Applied)*



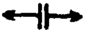
2.4.9 *To Release (Brakes Off)*



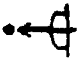
2.4.10 *To Clamp*



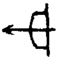
2.4.11 *To Release*



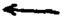
2.4.12 *Compression (Pressure Applied)*



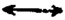
2.4.13 *Movement of Compressor*



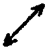
2.4.14 *Movement in Direction of Arrow*



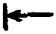
2.4.15 *Movement in Either Directions*



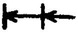
2.4.16 *Movement to and From the Operator*



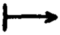
2.4.17 *Movement in Direction of Arrow to a Predetermined Stop*



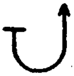
2.4.18 *Movement in Two or More Steps*



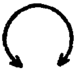
2.4.19 *Movement in Direction of Arrow from a Pre-set Position*



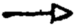
2.4.20 *U-Turn of Movement*



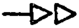
2.4.21 *Arcuate Movement*



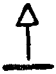
2.4.22 *Slow Movement in Direction of Arrow*



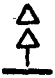
2.4.23 *Fast Movement in Direction of Arrow*



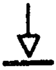
2.4.24 *Slow Movement from a Fixed Position*



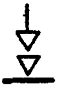
2.4.25 *Fast Movement from a Fixed Position*



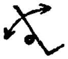
2.4.26 *Slow Movement to a Fixed Position*



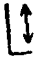
2.4.27 *Fast Movement to a Fixed Position*



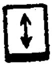
2.4.28 *Tilting of Table in Direction Indicated*



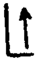
2.4.29 *Table Top or Foot Rest Movement*



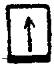
2.4.30 *As* **2.4.29** (*Alternative Symbol*)



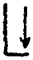
2.4.31 *As* **2.4.29**, *Table Top Movement in Direction Indicated*



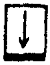
2.4.32 *As* **2.4.31** (*Alternative Symbol*)



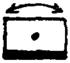
2.4.33 *As* **2.4.29** *Movement in Direction Indicated*



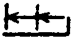
2.4.34 *As* **2.4.33** (*Alternative Symbol*)



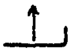
2.4.35 *Table Top, Cradle or Foot Rest Movement, in Direction Indicated*



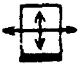
2.4.36 *Table Top Incremental Shift, in Direction Indicated*



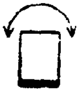
2.4.37 *Table Top Movement in Direction of Arrow*



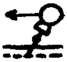
2.4.38 *Movement in Plane of Table Top*



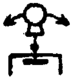
2.4.39 *Movement of Table Top About Axis as Shown*



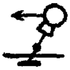
2.4.40 *Tomography, Test Movement*



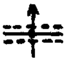
2.4.41 *Movement of Tomograph to Starting Position*



2.4.42 *Tomography, Tomographic Exposure*

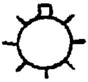


2.4.43 *Tomographic Layer Selection in Direction of Arrow*

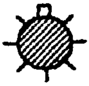


2.5 Symbols for Related Devices or Special Techniques

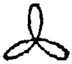
2.5.1 *Room Lighting, White*



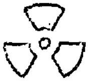
2.5.2 *Room Lighting, Red for Example, for Dark Roomlight*



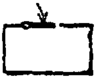
2.5.3 *Ventilation*



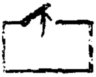
2.5.4 *Warning: Radiation*



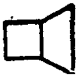
2.5.5 *To Close (General)*



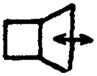
2.5.6 *To Open (General)*



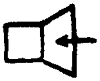
2.5.7 *Loudspeaker*



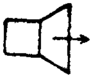
2.5.8 *Loudspeaker/Microphone*



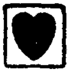
2.5.9 *Speak*



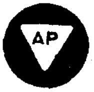
2.5.10 *Listen*



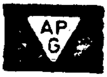
2.5.11 *Type CF Protection*



2.5.12 *Anaesthetic-Proof*



2.5.13 *Anaesthetic-Proof of Category G*



(*Continued from page* 2)

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